REMARKS

Claims 1-20 are pending in the application. In view of the remarks that follow, Applicants respectfully request reconsideration.

Disclosure of Wang U.S. Patent No. 6,789,031

Before addressing the claim rejections in detail, it will be helpful to briefly discuss the disclosure of Wang U.S. Patent No. 6,789,031. Applicants are enclosing a Diagram that diagrammatically summarizes the disclosure of the Wang patent. On the left side of the Diagram is a block 801 that represents a manufacturing Process A which yields a Product 802. On the right side of the Diagram is a block 803 that represents a manufacturing Process B which yields a Product 804. For purposes of this discussion, it is assumed that the Processes A and B are theoretically supposed to be exactly the same, except that Process A is carried out in one manufacturing facility, and Process B is carried out in a different manufacturing facility. Since Processes A and B are supposed to be the same, the resulting Products 802 and 804 should theoretically be identical. But in the real world, as a practical matter, there may be differences. For example, the manufacturing facility for Process A may happen to have manufacturing equipment that is made by one vendor, and the manufacturing facility for Process B may happen to have manufacturing equipment that is similar but made by a different vendor. Or the two manufacturing facilities may have different owners, who adhere to slightly different quality control standards.

The purpose of Wang's invention is to compare the physical products 802 and 804, in order to determine whether the associated Processes A and B are sufficiently similar in practice to be considered statistically equivalent to each other. Therefore, as discussed by Wang at lines 17-20 in column 3, lines 44-47 in column 5, and lines 51-54 in column 7, the method of Wang starts by identifying one or more parameters that can be measured from the Products 802 and 804 that were made by the Processes A and B. For the sake of simplicity in this discussion,

it is assumed that a single parameter is identified. Wang measures this parameter for the Product 802 in order to obtain a measured parameter 805, and measures the same parameter for the Product 804 in order to obtain a measured parameter 806. These measured parameters 805 and 806 are then used as inputs to a mathematical calculation that is represented diagrammatically by the block 807. In effect, the calculation 807 serves to statistically compare the measured parameter 805 for the Product 802 with the corresponding measured parameter 806 for the Product 804. The result or "output" of the mathematical calculation 807 is a determination 808 that either (1) the Processes A and B are statistically equivalent, or (2) the Processes A and B are not statistically equivalent.

Comments Offered by the Examiner in the Office Action

On pages 8-9 of the Office Action, the Examiner offers comments in response to arguments presented in Applicants' last Response. Applicants wish to briefly address these comments.

In the paragraph that bridges pages 8-9, the Examiner asserts that "Wang teaches calculating various parameters for manufacturing a semiconductor product at the end of his process . . . and therefore at the output". Applicants respectfully disagree, because this statement is not even remotely consistent with Wang's disclosure. First, with reference to the enclosed Diagram, the parameters 805 and 806 used by Wang are product parameters measured from completed products, rather than process parameters used to control and carry out either process. Second, and contrary to the assertions in the Office Action, the parameters 805 and 806 discussed in Wang are not outputs of Wang's inventive calculation 807. Instead, the parameters 805 and 806 are inputs to Wang's calculation 807. The output 808 of Wang's calculation 807 is merely a determination that the Processes A and B either are or are not statistically equivalent. The output 808 is not a process parameter, and is not subsequently used to directly control either or both of the Processes A and B.

In the paragraph at lines 11-18 on page 8, the Examiner states that "Wang does not teach a single process within the two or more processes available which follows the calculation of the parameter established in the claim". This statement intermingles a discussion of Wang with a discussion of Applicants claims, and is also grammatically awkward, to the point where Applicants cannot understand what this statement is supposed to mean. The Examiner goes on to assert that "Wang uses information from an established manufacturing plant to establish the boundaries for his process parameters". However, with reference to the enclosed Diagram, Wang's invention uses product parameters 805 and 806, and not process parameters. In addition, Wang does not actually contain any occurrence of the word "boundary", much less in the specific context of establishing boundaries for process parameters, still less based on any information from the manufacturing plants 801 and 802 that respectively carry out the Processes A and B. Finally, the Examiner asserts that Wang "establishes his process parameter prior to receiving feedback". However, it is respectfully submitted that this statement is completely inconsistent with what is actually disclosed in Wang, for example as represented diagrammatically in the enclosed Diagram.

In the paragraph at lines 3-9 on page 9 of the Office Action, the Examiner expresses disagreement with Applicants' prior argument that an obviousness rejection under 35 U.S.C. §103 involved the use of hindsight. In regard to hindsight reconstruction, the Examiner states that "so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from Applicant's disclosure, such a reconstruction is proper". However, the point of Applicants' prior argument was precisely that this particular requirement has not been met, because "the §103 rejection is based on hindsight of the present invention, rather than on motivation properly derived from what was known prior to the present invention". (Lines 3-5 on page 15 of Applicants' prior Response filed July 25, 2005). The paragraph at lines 3-9 on page 9 of the present Office Action does not attempt to show how the Examiner's proposed reconstruction

might possibly have been motivated by the prior art, rather than by hindsight of Applicants' disclosure.

In the paragraph at lines 10-20 on page 9 of the Office Action , the Examiner asserts that Wang U.S. Patent No. 6,789,031 and Skidmore U.S. Patent No. 6,622,102 are both within Applicants' field of endeavor, and are therefore analogous art. Applicants respectfully disagree. As noted by the Examiner, page 1 of Applicants' specification states that Applicants' invention is directed to a "system and method for manufacturing a semiconductor product". The Examiner then asserts that Wang and Skidmore are also both directed to the manufacture of a semiconductor product. However, Wang's invention is not in any way limited to any particular type of process, and in particular is not limited to a process of manufacturing integrated circuits. For example, as discussed by Wang in the paragraph at lines 23-36 of column 2, Wang's invention can be readily used with a wide variety of different processes. Nothing about Wang's invention is specific to the manufacture of integrated circuits. Moreover, with reference to the enclosed Diagram, the manufacture of products occurs within blocks 801 and 803. These manufacturing processes are prior art as to Wang, and have nothing to do with Wang's invention. Wang's invention is basically the calculation performed at block 807, which is not specific to any particular type of process. Contrary to the assertions in the Office Action, it is definitely not specific to a process for manufacturing semiconductor products. Turning to the Skidmore patent, Skidmore basically deals with the idea of putting on each part, at the start of the fabrication of the part, a unique identifier (which is equivalent to a serial number). Skidmore then maintains in a separate computer a database that stores, in association with each unique identifier, information relating to the particular part having that unique identifier. Although Skidmore happens to explain this concept using the example of a semiconductor manufacturing process, the broad essence of Skidmore's concept can be directly used in a wide variety of different types of processes, and is not itself limited specifically to a semiconductor manufacturing process. Skidmore does not discuss any details of any specific semiconductor manufacturing process, because Skidmore's invention is not directed specifically to a semiconductor manufacturing

process. Applicants therefore respectfully submit that neither the Wang invention nor the Skidmore invention is actually limited specifically to a process for manufacturing semiconductor products. Accordingly, as previously pointed out by Applicants, neither Wang nor Skidmore is truly within Applicants' field of endeavor, and neither qualifies as analogous art.

Independent Claim 1

Turning now in more detail to the specific grounds of rejection set forth in the present Office Action, independent Claim 1 stands rejected under 35 U.S.C. §102 as anticipated by Wang U.S. Patent No. 6,789,031. This ground of rejection is respectfully traversed, for the following reasons. The PTO specifies in MPEP §2131 that, in order for a reference to anticipate a claim under §102, the reference must teach each and every element recited in the claim. Claim 1 of the present application expressly recites:

> establishing a process parameter for manufacturing a semiconductor product prior to receiving manufacturing feedback regarding the process parameter, . . . including:
>
> calculating the process parameter based on the retrieved information.

The technique disclosed in the Wang patent is different. In particular, with reference to the enclosed Diagram, Wang discloses a method of comparing parameters 805 and 806 measured from two products 802 and 804, in order to evaluate whether the processes 801 and 803 that were used to make the products are statistically equivalent. Wang's invention is the calculation 807, which starts with the measured product parameters 805 and 806, and which ends with a determination 808 that the two processes either (1) are statistically equivalent or (2) are not

statistically equivalent. The calculation 807 in Wang does not yield any process parameter that is subsequently used to carry out either of the two processes 801 and 803.

In contrast, Claim 1 of the present application does not involve a comparison of two different products, much less in an attempt to statistically compare the processes that were used to make the products. Instead, Claim 1 recites calculation of a process parameter to be used in subsequently carrying out a process. Wang does not disclose anything comparable to the limitations from Claim 1 that have been quoted above. Wang thus does not disclose each and every element recited in Claim 1, and does not meet the requirement discussed in MPEP §2131. Consequently, Claim 1 is not anticipated under §102 by Wang. Claim 1 is therefore believed to be allowable over Wang, and notice to that effect is respectfully requested.

Independent Claim 10

Independent Claim 10 stands rejected under 35 USC §103 as obvious in view of a proposed combination of teachings from Wang and from Skidmore U.S. Patent No. 6,622,102. This ground of rejection is respectfully traversed. The PTO recognizes in MPEP §2142 that:

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Wang and Skidmore fail to establish a prima facie case of obviousness under §103 with respect to Claim 10, for the mutually exclusive reasons that are discussed below.

THE PROPOSED COMBINATION DOESN'T TEACH THE CLAIMED SUBJECT MATTER

The proposed combination of Wang and Skidmore does not teach the subject matter of Claim 10. The provisions of MPEP §2142 specify with respect to §103 that:

> To establish a *prima facie* case of obviousness . . . the prior art reference (or references when combined) must teach or suggest all the claim limitations. (Emphasis added).

The PTO considers this requirement to be important, as evidenced by the fact that this exact language appears not only in MPEP §2142, but also in other sections of the MPEP, including MPEP §706.02(j) and MPEP §2143. Applicants' Claim 10 includes a recitation of:

> determining a process parameter value to be used in manufacturing a semiconductor product prior to receiving feedback regarding the manufacturing, wherein the process parameter is associated with a specific technology, . . . including:
>
> calculating a mean . . .; and
>
> using the mean as the process parameter.

The Office Action asserts that these limitations from Claim 10 are met by the Wang patent. However, as discussed above in association with Claim 1, Wang does not teach or suggest subject matter comparable to these limitations from Claim 10. As to Skidmore, the Office Action does not rely on Skidmore for teachings that would meet these quoted limitations from Claim 10. Instead, the Office Action relies on Skidmore for different teachings, relating to the selection of one or more part identifiers. Consequently, the proposed combination of teachings set forth in the Office Action does not include anything comparable to the limitations from

Claim 10 that have been quoted above. In other words, even when the indicated teachings from Wang and Skidmore are combined, they fail to satisfy the requirement of MPEP §2142 that the combined teachings must collectively "teach or suggest all the claim limitations" (emphasis added). Therefore, for this independent reason alone, it is respectfully submitted that Claim 10 is not obvious under §103 in view of Wang and Skidmore, and notice to that effect is respectfully requested.

NONANALOGOUS ART CANNOT BE USED TO ESTABLISH OBVIOUSNESS

For the purpose of trying to establish a prima facie case of obviousness under 35 U.S.C. §103, only analogous prior art can be considered. In this regard, MPEP §2141.01(a) specifies that, for a reference to be "analogous" prior art that can be considered under §103, it must be either (1) in the field of Applicants' endeavor or (2) reasonably pertinent to the particular problem with which the inventor was concerned. The provisions of §2141.01(a) go on to explain that, although the PTO classification system carries a small amount of weight in determining what is relevant, the similarities and differences in structure and function carry far greater weight. In this regard, §2141.01(a) discusses a specific example, and states that:

> The court also found the reference was not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for refined petroleum by considering a reference dealing with plugging underground formation anomalies.

In the present situation, and as discussed above, Wang and Skidmore are both directed to concepts that can be used in a wide variety of different types of processes. Although Wang and Skidmore each mention semiconductor manufacturing processes, neither discloses a concept that

is inherently restricted to a semiconductor manufacturing process, and neither focuses specifically on an improvement to a semiconductor manufacturing process. Consequently, neither Wang nor Skidmore is truly within Applicants' field of endeavor. Turning to the problem with which Applicants were concerned, Applicants faced the problem of determining a process parameter to be used in manufacturing a product. Neither Wang nor Skidmore recognizes or discusses this particular problem. A person of ordinary skill in the art would not reasonably have expected to solve this particular problem by considering either Wang or Skidmore. In the words of the MPEP, Wang and Skidmore are "not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of" determining a process parameter to be used in manufacturing a product by considering Wang and/or Skidmore. Accordingly, it is respectfully submitted that neither Wang nor Skidmore is within Applicants' field of endeavor, and that neither is reasonably pertinent to the particular problem with which Applicants were concerned. Thus, neither Wang nor Skidmore is what the PTO considers to be "analogous" prior art, and neither can properly be used in an attempt to establish a prima facie case of obviousness under §103. Consequently, the Examiner's burden of factually supporting a prima facie case of obviousness has not been met. For this reason alone, it is respectfully submitted that the pending §103 rejection of Claim 10 must be withdrawn, and notice to that effect is respectfully requested.

THE COMBINATION OF REFERENCES IS IMPROPER

There is yet another reason why Wang and Skidmore cannot be combined in the proposed manner to reject Claim 10 under §103. In this regard, MPEP §2142 provides that:

> To reach a proper determination under §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. . . . Knowledge of

> applicant's disclosure must be put aside in reaching this determination, . . . impermissible hindsight must be avoided, and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

The MPEP further provides at § 2143.01 that:

> The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so". (Emphasis in original).

As discussed above, neither Wang nor Skidmore has any teachings relevant to determining a process parameter to be used in manufacturing a product. Consequently, even if a person skilled in the art was considering these two references, there is nothing in the prior art that would motivate such a person to modify Wang so as to introduce something that is not in either Wang or Skidmore, namely "determining a process parameter to be used in manufacturing a semiconductor product". The present §103 rejection of Claim 10 is therefore incomplete, because it fails to demonstrate suitable motivation as required by the MPEP. In effect, the §103 rejection is based on hindsight of Applicants' disclosure, rather than on motivation properly derived from what was known prior to the present invention. Accordingly, for this independent reason alone, it is respectfully submitted that Claim 10 is not rendered obvious under §103 by Wang and Skidmore, and notice to that effect is respectfully requested.

In view of the various different reasons discussed above, it is respectfully submitted that Claim 10 is not rendered obvious under §103 by Wang and Skidmore. Claim 10 is therefore believed to be allowable, and notice to that effect is respectfully requested.

Independent Claim 16

Independent Claim 16 stands rejected under 35 USC §103 as obvious in view of a proposed combination of teachings from Wang and from Skidmore U.S. Patent No. 6,622,102. This ground of rejection is respectfully traversed. As discussed above, the PTO recognizes in MPEP §2142 that:

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Wang and Skidmore fail to establish a prima facia case of obviousness under §103 with respect to Claim 16, for the mutually exclusive reasons that are discussed below.

THE PROPOSED COMBINATION DOESN'T TEACH THE CLAIMED SUBJECT MATTER

The proposed combination of Wang and Skidmore does not teach the subject matter of Claim 16. The provisions of MPEP §2142 specify with respect to §103 that:

> To establish a *prima facie* case of obviousness . . . the prior art reference (or references when combined) must teach or suggest all the claim limitations. (Emphasis added).

The PTO considers this requirement to be important, as evidenced by the fact that this exact language appears not only in MPEP §2142, but also in other sections of the MPEP, including MPEP §706.02(j) and MPEP §2143. Applicants' Claim 16 recites a system that includes:

> a portion for determining a process parameter value to be used in manufacturing a semiconductor product prior to receiving feedback regarding the manufacturing, the portion of the system including: . . .
>
> a plurality of software instructions including: . . .
>
> instructions for calculating a statistical value . . .; and
>
> instructions for defining the process parameter value based on the statistical value.

The Office Action asserts that these limitations from Claim 16 are met by the Wang patent. However, as discussed above in association with Claim 1, Wang does not teach or suggest subject matter comparable to these limitations from Claim 16. As to Skidmore, the Office Action does not rely on Skidmore for teachings that would meet these quoted limitations from Claim 16. Instead, the Office Action relies on Skidmore for different teachings, relating to the selection of one or more part identifiers. Consequently, the proposed combination of teachings set forth in the Office Action does not include anything comparable to the limitations from Claim 16 that have been quoted above. In other words, even when the indicated teachings from Wang and Skidmore are combined, they fail to satisfy the requirement of MPEP §2142 that the combined teachings must collectively "teach or suggest all the claim limitations" (emphasis added). Therefore, for this independent reason alone, it is respectfully submitted that Claim 16 is not obvious under §103 in view of Wang and Skidmore, and notice to that effect is respectfully requested.

NONANALOGOUS ART CANNOT BE USED TO ESTABLISH OBVIOUSNESS

For the purpose of trying to establish a prima facie case of obviousness under 35 U.S.C. §103, only analogous prior art can be considered. In this regard, MPEP §2141.01(a) specifies that, for a reference to be "analogous" prior art that can be considered under §103, it must be either (1) in the field of Applicants' endeavor or (2) reasonably pertinent to the particular problem with which the inventor was concerned. The provisions of §2141.01(a) go on to explain that, although the PTO classification system carries a small amount of weight in determining what is relevant, the similarities and differences in structure and function carry far greater weight. In this regard, §2141.01(a) discusses a specific example, and states that:

> The court also found the reference was not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for refined petroleum by considering a reference dealing with plugging underground formation anomalies.

In the present situation, and as discussed above, Wang and Skidmore are both directed to concepts that can be used in a wide variety of different types of processes. Although Wang and Skidmore each mention semiconductor manufacturing processes, neither discloses a concept that is inherently restricted to a semiconductor manufacturing process, and neither focuses specifically on an improvement to a semiconductor manufacturing process. Consequently, neither Wang nor Skidmore is truly within Applicants' field of endeavor. Turning to the problem with which Applicants were concerned, Applicants faced the problem of determining a process parameter to be used in manufacturing a product. Neither Wang nor Skidmore recognizes or discusses this particular problem. A person of ordinary skill in the art would not reasonably have expected to solve this particular problem by considering either Wang or Skidmore. In the words

of the MPEP, Wang and Skidmore are "not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of" determining a process parameter to be used in manufacturing a product by considering Wang and/or Skidmore. Accordingly, it is respectfully submitted that neither Wang nor Skidmore is within Applicants' field of endeavor, and that neither is reasonably pertinent to the particular problem with which Applicants were concerned. Thus, neither Wang nor Skidmore is what the PTO considers to be "analogous" prior art, and neither can properly be used in an attempt to establish a prima facie case of obviousness under §103. Consequently, the Examiner's burden of factually supporting a prima facie case of obviousness has not been met. For this reason alone, it is respectfully submitted that the pending §103 rejection of Claim 16 must be withdrawn, and notice to that effect is respectfully requested.

THE COMBINATION OF REFERENCES IS IMPROPER

There is yet another reason why Wang and Skidmore cannot be combined in the proposed manner to reject Claim 16 under §103. In this regard, MPEP §2142 provides that:

> To reach a proper determination under §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. . . . Knowledge of applicant's disclosure must be put aside in reaching this determination, . . . impermissible hindsight must be avoided, and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

The MPEP further provides at § 2143.01 that:

> The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so". (Emphasis in original).

As discussed above, neither Wang nor Skidmore has any teachings relevant to determining a process parameter to be used in manufacturing a product. Consequently, even if a person skilled in the art was considering these two references, there is nothing in the prior art that would motivate such a person to modify Wang so as to introduce something that is not in either Wang or Skidmore, namely "determining a process parameter value to be used in manufacturing a semiconductor product". The present §103 rejection of Claim 16 is therefore incomplete, because it fails to demonstrate suitable motivation as required by the MPEP. In effect, the §103 rejection is based on hindsight of Applicants' disclosure, rather than on motivation properly derived from what was known prior to the present invention. Accordingly, for this independent reason alone, it is respectfully submitted that Claim 16 is not rendered obvious under §103 by Wang and Skidmore, and notice to that effect is respectfully requested.

In view of the various different reasons discussed above, it is respectfully submitted that Claim 16 is not rendered obvious under §103 by Wang and Skidmore. Claim 16 is therefore believed to be allowable, and notice to that effect is respectfully requested.

Dependent Claims

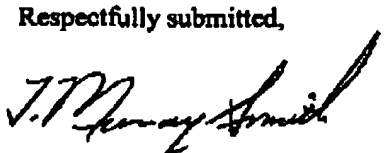
Claims 2-9, Claims 11-15, and Claims 17-20 respectively depend from Claim 1, Claim 10 and Claim 16, and are also believed to be distinct from the art of record, for example for the same reasons discussed above with respect to Claims 1, 10 and 16, respectively.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at (972) 739-8647.

Although Applicants believe that no fee is due in association with the filing of this Response, the Commissioner is hereby authorized to charge any additional fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone LLP.

Respectfully submitted,



T. Murray Smith
Registration No. 30,222
(972) 739-8647

Date: October 11, 2005

HAYNES AND BOONE, LLP
901 Main Street, Suite 3100
Dallas, Texas 75202-3789
Telephone: (972) 739-6900
Facsimile: (214) 200-0853
File: 24061.121

Enclosures: Diagram

R-117182.1